Pathways

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A TRYST WITH NATURE

—A CAMP EXPERIENCE (II)

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In the August 1988 issue I had outlined the planning and execution of the camp held for children of classes IV and V of our school. This part of the article carries the extract from Srimad Bhagvatham, the Life of Lord Krishna, which we shared with the children, their reactions and a selection of their outpourings in Hindi and English. There are samples too of the kind of mathematics they worked on. The sub-titles, mentioned in my earlier article, were used to classify the children's work and at the exhibition.

The Extract From Srimad Bhagavadam—The Life of Lord Krishna.

Avadhuta Had TwentyFour Teachers

Yadu was one of the early Yadava Kings to which clan Lord Krishna belonged. The extract is a conversation between King Yadu and an Avadhutta - a wandering saint.

Seeing a wise young Avadhuta wandering about fearlessly, Yadu, the king, said to him"

"O ! Brahmin, thou art indeed free from fear and ego. Tell me, please how did thou attain thy vast wisdom, which enables thee to roam free from care like a child, over the face of the earth. You are talented, learned and most pleasing. But you are as if thou wert an idiot. O Brahmin ! Pray tell me how thou, though living a lonely life, dost find delight in thyself, untouched by the miseries of the world",

"O King, I roam on earth a free soul, having received wisdom from twenty four teachers; the earth, air, mountain, water, tree, the mud, the star, fire, the moon, the sun, the flowers, the pigeon, the python, the ocean, the moth, the elephant, the bee, the honey-gatherer, the deer, the fish, the wild flower, an eagle, the child, a bracelet, the arrowmaker, the snake, the spider, the cock-roach

These are twenty four teachers from whom I have learnt great lessons and have gathered my wisdom. I will recount my lessons."

From Earth : I have learnt the power to understand and bear, and to achieve good for the sake of good.

1. **Air** : As the Air remains unaffected by good or bad odours, so a wise man should move amongst good and bad objects unaffected.

2. **Mountain** : Mountains have always given me an immovable inner strength. To rise above all evils and stand up straight and strong.

3. **Water** : Like water, to be clear, soothing, sweet and purifying.

4. **Tree** : To be always generous. To give without expecting any good or reward in return.

5. **The Mud** : To keep our mind open and porous, to absorb the good things in life and allow a free growth for the roots of good thoughts.

6. **The Star** : To aspire to be one among the many and still be able to distinctly shine even in the darkest of times.

7. **Fire** : To shine with divine glory, a heavenly lustre, to be fearless and self controlled, The almighty is like the all consuming fire who takes away all evils to help his children lead a bright life.

8. **The Moon** : Cool and yet beautiful. To be able to keep watch on the needs of friends even during the dark days.

9. Just as **the Sun**, though one, appears as many when reflected in many vessels of water.

10. From **the Pigeon** : to be free and have no boundaries around me.

11. Food comes of itself to the **Python** and the python is happy with what ever he gets. A wise man struggles not for the mere maintenance of life by eating but keeps his mind united with God.

12. Like **the Ocean** : when it is calm and placid the wise man is poised deep in knowledge. The brimful Ocean overflows not, neither does it dry up.

13. A foolish person is like a **Moth**, who gets blinded by gold and pleasure and falls into the flame and gets destroyed.

14. **The Elephant** : Be like an elephant carrying a large head full of knowledge and have a small eye to the small things in life.

15. Like **the Bee**, gathering honey from different flowers the wise man accepts the essence of good from everyone.

    Hoard not wealth as the bee hoards honey. One who does so is like the bee, who together with his wealth is destroyed.

16. Be not like the **Honey gatherer** stealing honey from the bee hive. Make a business of taking the hoarded wealth from the greedy and miserly, who neither enjoy the wealth themselves nor permit any good to be done with it.

17. **Be like a Deer** not enchanted by sweet music, who will put up his ears and look around before he takes a run.

18. An ignorant and greedy man, whose organ of taste is not under control meets with death like **the fish** caught on a hook.

19. The wild and beautiful **flowers** which retain fragrance, even when completely withered. is this fragrance that we offer to God.

20. This is the lesson I have learnt from **an eagle** who was attacked and followed by other stronger birds as long as he carried a piece of flesh in his mouth. As soon as he dropped the piece of flesh he was free and happy.

21. I have no fear in me. Like a **Child**. I wander, confident that everything around me is safe and sure that if there is a problem My Father,

My Mother will reach out. A child is happy through ignorance, the wise man through knowledge.

22. Be like **a snake** which enters a hole made by others, and there lives happily. A mendicant, like the snake enters a dark cave in the forest and finds peace and happiness there.

23. The Almighty is like **the spider.** As the spider weaves its thread out of its own mouth, plays with it and then withdraws it again into itself. So is the formless Almighty who is absolute knowledge, absolute happiness who is all prevailing and finally withdraws the universe into himself.

(A clearer example is of Lord Krishna himself when he is asked by his mother to open his mouth when caught eating the mud),

24. As a man keeps thinking deeply through love, or hate, or fear so he becomes. The cockroach a harmless insect being attacked by a **Bhramara-Kita**, becomes a Bhramara-kita - because it only thinks of its enemy all the time, as a result is transformed into the object of its fear.

"All this I have learnt from the many teachers of Nature. The Lord through his divine powers created various forms such as trees, reptiles, beasts, birds, insects, flowers, fish, but with these he was not content. Then he created the human form, a wiser form with intelligence that he may learn and spread knoweledge to increase happiness and peace."

Thus taught by the Avadhuta, King Yadu also became an Avadhuta to attain happiness and peace.

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The Children's Interpretation of the Story

Air

* Be good to all without any difference of caste creed or colour.
* We should be like air blowing all problems away.
* Invisible, yet always helping, without making its presence always obvious.

Have pure and good thoughts.

* As the air moves in all direction, so should our knowledge.

Mountains

* Rise above all meanness.
* Be an example to others.
* Be not proud of your strength,
* Stand upright, valiantly at all times.
* Symbol of patience and determination.
* Be firm and upright.
* Fight all evils.
* Do not be moved by others.

Water

* Waves of water teach us life too has its ups and downs, so don't get disheartened.
* Be generous and satisfy the thirst of all.
* As the water flows constantly and never gets tired,

We must also work hard and not give up.

* To be cool and adjustable like water which can be put in any vessel of any shape.
* Be cooling, refreshing and soothing.
* Our minds should be clear as water.
* Keep moving and cross all hurdles.

Trees

* Spread happiness and comfort.
* Give all without asking anything in return.
* Be large hearted and spread out your arms. Provide shelter to the needy.
* Be always giving with a smile.

Earth

* Every grain of sand holds up together the land.
  And gives place for others to stand.
* We learn forbearance and to share.
* Earth teaches us to carry loads with a smile.
* Keep moving non-stop.
* Keep all secrets within you.

Stars

* Stars teach us to show others the right path.
* Light up or brighten up the path of others.

Fire

* To bring warrmth and brightness in other lives.
* Burn all evils.
* Be warm always.
* Fire teaches us to give all of us.
  Not to be left with anything for itself.

Moon

* We must receive and share our knowledge.
* Be pleasant to all.
* We learn to help in need.
  Even if we have to borrow from others.
* We should not be judged by our appearance.
* Looks can be deceptive.

Sun

* Must shine with our best quality and make every one feel thè need of us.
* Do not expect anything in return.
* Even if you are far away, be warm.
* Be a source of happiness to others.

Pigeon

* Be free and keep flying high.
* Be like the pigeon, a symbol of love and peace.
* Spread your wings and spread the message of brother hood.

Grass

* Be silent even when others step on you.
* Have patience and tolerance in every walk of life.
* Keep growing even if you know that others will tread on you.

Ocean

* Be large hearted.
* Keep your mind overflowing with knowledge.
* Oceans may be noisy and full of problems from outside.
  Within they are deep and warm and shelter the smallest fish.
* Like the ocean knowledge is vast and does not dry up.

Lotus

* Be beautiful even in dirty surroundings.
* Be sweet natured and spread your fragrance.

A Tribute to Gurudev

I Love to be a Flower

In the camp I saw flowers
That were watered with rain showers
I would too love to be a flower
And grow up with showers
Of happiness and laughter
And spread God's name ever after.
We should help others by treating
everyone as brothers, on this earth
And stand above the sins, since our birth
Like this we should give beautiful sight and good advice
So that it makes everyone wise and feel nice.

Aman Kohli IV D

My Fascination

I gazed at the horizon
And then at the lake
There were hundreds of ripples
Like small golden snakes.
I gazed at the tree-tops
With their rustling leaves
A bigger umbrella
I never did see.
I gazed at the heaven
Through the golden sunlight
Then thought, "What could be more fascinating than these three lovely sights".

Ketaki Banga V-B

Camping

We went for camping
In a woody forest
The forest so lovely and mysterious
That we wanted to explore and explore
It had a wide lake
With its water rippling blue
Forests like this in the world are very few
Unfortunately there was no fish in the lake that we could fish
but we didn't come to kill the creatures
We came to admire them
The forest was so wild
that anything could happen
but we the budding detectives
were ever ready to solve it,
Unfortunately nothing happened
I had a lovely time there
I was sad to leave the forest,
which made my mind run wild.

Varun Laul IV-D

Tete-a-Tete with a Sapling

We had gone to the camping ground in D.D.A. forest. Next day we planted some trees, Each of us named our baby plant. It was an exciting job. Then in the evening we went to see our plants. When I was about to go I heard a small voice. It was the plant.

Plant : "Mama, when will you come again ?"
I was surprised.

I : "Is it you I hear darling" (Name of my plant)
Darling : "Yes mama, it's me. I'll be very scared on my own".

I "Look, you'll have to be brave. Otherwise your friends will mock you."

Darling : "But who will water me. tend my roots and look after me ?"

I: "Don't you worry, there will be a gardener to look after you. And you are going to have an exciting life with your friends and lots of cool breeze".

Darling : Yes I understand. I'll try to be a sport."

I: "That's like it. Now I must go...Good Bye".

* * * *

Trees Trees they are our friends,
Don't let them come to an end
Save them if you can,
or they will be killed by man.

* * * *

My dear Baby Tuisha,

How are you ? It is three weeks since I planted you to at DDA forest where we had gone camping. Does anyone give you water daily ? Whenever I water my potted plants I think of you. I wish I could see you now. Have you grown taller and stronger ? Is the *mali* kind to you ?

I shall ask my parents to take me to visit you on a Sunday. I feel worried about you. I hope sweet nature provides you with rain water and shade, and keeps the greedy goats away from you. Soon you will become old enough to look after yourself.

Do you remember me ? I was then fn class V-C but now I have joined my new class VI-A. I am busy learning some new subjects.

How are your brothers and sisters who were planted along with you—Candy, Cleopatra Green-Valley ? Give my love to them all.

With lots of hugs and love your loving friend.

RONJITA
Blue Bells School

We Enjoyed Doing. . .at the Camp

In a game every child mined the action and others guessed it. As a rule of the game they could not repeat what was already done. The collection of action words grew very long indeed.

Playing, sleeping, cracking jokes, drawing, climbing, finding, exercising, eating, singing, talking, brushing, smiling, riding, fighting, changing, planting, painting, seeing, working, shouting, reading, cheering, sharing, arguing, living, loving collecting, debating, thinking, jumping, kicking, making new friends, keeping, having fun, chatting, plucking, whistling, shivering, clearing, scolding, crying, flattering, washing, wandering, exploring, bullying, tying, whispering, watering packing, burning, dressing, waiting, chasing, teasing, writing, breathing, laughing, roaming, observing, visiting, admiring, serving, spilling, morning, measuring, answering, jogging, calculating, polishing, camping, yawning, assembling, missing, sneezing, coughing, resting, disturbing, dribbling. gazing, composing, imagining, deaming.

Everything Beautiful

In this game every child contributed one word to what the camp was or described any aspect of the camp. (Collection of describing words)

beautiful colourful peaceful pretty girls, generous, tasty food, delicious cutlets. dainty, tall buildings, big tents, very cold nights, dirty water, small grass, big pond broad tents, torn tents, handsome boys, dirty dogs, warm, black frogs, rippling, blue water, merry tents, hard rocks, bright day, blue sky, brave children, yellow leaves chirpy birds, hilarious talks, red apples, juicy oranges, beautiful scenery, patched tents, concrete jungle, nice day, cosy tent, happy camp, adventurers, comfortable camp, spacious hall, stuffy tent, quiet, scary night, starry sky, enjoyable camp, exciting, short stay, small, interesting wonderful, delightful, unforgetable, green lawn friendly teachers, busy day, gay faces.

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A Tribute to मैथली शरण गुप्त

कैम्प की वह अंधेरी रात

कैम्प की वह अन्धेरी रात ! बाप रे बाप !
कितनी डरावनी ।
फिर मम्मी पापा से दूर, टेन्ट में अकेले सोना ।
साथ में दूसरे बच्चे, फिर मेम भी तो होगी ।
मन ही मन यह बात आयी
पर वह मेरे साथ थोड़ी सोएँगी, एक चारपाई पर ।
टेन्ट के बाहर, खाने के बाद
वह घना काला जंगल चारों ओर,
पास के तालाब से मेढ़कों के टर्र टर्र की आवाज
इस बीच मालुम है क्या हुआ
मेम सुबरायन ने जब बच्चों को चारों ओर बैठा कर कहानी सुनाना शुरू किया ।
आधे बच्चे तो वहीं नींद की गोद सो गए और बाकी का क्या हुआ, मुझे मालुम नहीं क्योंकि मैं भी सोने वाले बच्चों में से एक था ।

वृक्ष

सुन्दर और प्यारा वृक्ष
खाने को देता यह वृक्ष
सोने की छाया देता
गरमी से छुटकारा देता
पर क्या लेता है हमसे
क्या कभी कुछ मांगता
क्या कहता है हमें
मूक होकर कुछ मांगता
"सब कुछ पाना मत तू सीख,
कुछ तो देना भी तू सीख"

दिपीका

कैम्प में जाने से पहले

कैम्प में जाना, मित्रों के साथ रहना,
घर से बाहर, घर से दूर,
क्या उमंग थी, क्या उत्साह था।
यह मेरा पहला अनुभव था।
सामान बांधना, अपना काम खुद करना
कैसा होगा कैम्प, कैसा होगा टैन्ट
रात भर सो न सकी
सपने देखती रही।
यह मेरा पहला अनुभव था।
ऐसा करना, ऐसा न करना
मम्मी डैडी का बार बार समझाना
कैम्प में जाना, टैन्ट में रहना
क्या उमंग थी, क्या उत्साह था
यह था मेरा पहला अनुभव
कैम्प फायर के सामने बैठना, वह नाचना, गाना
खा पी कर निश्चित सो जाना
घर से बाहर, घर से दूर
यह मेरा पहला अनुभव था।

"स्वाती"

सीटी का कमाल

कैम्प में हमारा अनुभव, वह तो था सीटी का कमाल। पुलिस की सीटी सुनी है, बस कंडक्टर की सीटी भी आपने सुनी है पर यह सीटी थी हमारी मेम सुबरायन की। एक सीटी बजाती तो टैन्ट के लीडर को दौड़ कर जाना पड़ता। बारह टैन्ट जो थे सबमें संदेश भिजवाने का अच्छा तरीका ढूंढा था। दो सीटी बजाती तो सभी बच्चे दौड़कर जाते, यह सोच कर कि शायद खाना मिलेगा लेकिन निकलता कुछ और ही। तीसरी सीटी बजने पर सब टैन्ट की अध्यापिकाओं को दौड़कर जाना पड़ता और चार सीटियां तो तब बजती जब सबको टैन्ट में वापिस जाना होता था। मजा तो तब आता जब सीटी गलत सुनाई देती, लेकिन हम जाना न भूलते और हँसी से लोट-पोट हो कर वापिस आते। आज भी जब पीटी मेम सीटी बजाती है तो कैम्प की सीटियों की याद आ जाती है। ★

In thinking with Aryabhatta

Q. Length of the tent is 3.90 m, breadth of the tent is 3.60 m. Find the area and the perimeter of the tent?

Ans. **Area**

Length of the tent = 3.90 m
Breadth of the tent = 3.60 m
the area of the tent = l × b
= 3.90 × 3.60 = 14.0400 sq.m
The area of the tent is 14.04 sq.m

Perimeter

Length of the tent = 3.90 m
Breadth of the tent = 3.60 m
Perimeter of the tent = 2 (l + b)
= 2 (3.90 + 3.60)
= 2 × 7.50 = 15 00m
The perimeter of the tent = 15 m

Q. Find the circumference of the tree with the help of a measuring tape ?

Ans: The circumference of the tree is 61 cm.

Q. Radius of the platform around the tree is 147 cm. What is the diameter of the platform ?

Ans: Radius of the platform around the tree 147 cm. Diameter of the platform around the tree = Radius × 2 = 147 × 2 cm.

Diameter of the platform around the cm, tree is = 2.94 metres.

Other problems worked out involved calculations of number of children in each tent, the ratio of boys to girls, fractions and money spent on food.

Grand Children of C.V. Raman

Reproduced below are two conversations which took place at the camp. Several opportunities like these arose, where children could observe, use nature as a living laboratory and apply the 'facts' learnt from textbooks in the classroom situation.

I. Ami—"Oh ! Can you see a pond there" ?

Gabor—"Come lets go there".

Dhiraj—"I wish I could swim in it".

Ma'am: "Oh you can't swim in its dirty water." Saket. "Maam just look that man is pouring Kerosene in the water".

Dhiraj ; "Oh ! He is polluting the water; lets stop him".

Ma'am—"Let him do his work",

Gabor : "Ma'am please tell why is he doing that."

Maam : "Mosquitoes lay their eggs in water. These develop into larvae".

Amit : "Oh ! I know kerosene is lighter than water so it will float on it".

Gabor : "So that the larvae will not breathe and they will die".

Dhiraj : "Oh ! That's a very easy way to stop population of mosquitoes.

Amit : "Now we can also help to eradicate malaria which is spread by mosquitoes".

II. Payal : "Oh what fun ! We are going to have a bonfire".

Gita : "Oh, why are the logs not burning".

Nupur—"I know: let's put some kerosene oil on the log"

Payal : "Oh yes ! let's do that".

Gita—(Clapping her hands) "The logs have started burning".

Felicia—"But why should we do that ?"

Maam—"Can anyone of you tell her ?

You have read the lesson keeping warm in Science".

Payal : "Oh ! Yes, it is a highly flammable substance ....."

Gita— ..."and it is a fuel. It gives us heat energy".

Maam—"Very good Payal and Gita. Felicia, have you understood now."

Felicia. (shyly) "Oh ! Yes Ma'am."

* * *

Activities with Paper (IV)

Dr. Lalit Kishore

Activity No. 20

Make a paper-pinwheel (*Phirki*) and attach its pin to a reed or a stick. Blow air on the pinwheel or run with it. What do you observe and why ?

Activity No. 21

Take a piece of stiff paper (5cm×5cm). Rub wax on it thoroughly or oil it. Put water drops of different sizes on the paper. What do you observe and why ?

Activity No. 22

Take a piece of stiff paper. Rub wax on it throughly. Spray water on it with a spray gun. Lift the paper piece and hold it vertically. What do you observe and why ?

Activity No. 23

Using the same size of newspaper sheets make tubes of 1cm diameter. Bend the tube in different shapes such as triangle, rectangle, pentagon. Try to deform the shapes by pressuring them inward from the corners. What do you observe and why ?

Activity No. 24

Using the same size of papers, make tubes of different diameters. Support the tubes in turn across two stools to use them as a simple beam bridge. Load the tubes in turn, at the centre using a scale-pan, and watch the beam bridge getting deformed. What do you observe and why ?

Activity No. 25

Using a rectangular piece of paper make a dart (paper-plane). Throw the dart in the air. Now bend the corner of the wing of the dart downwards and throw it again. What do you observe and why ?

Activity No. 26

Take a foolscap paper and at its longer side roll up three folds of 2 cm width. Bend the paper and join the two shorter sides of the paper. Hold the paper at the rolled up end with the left-hand fingers and push the diagonally opposite corner of the paper so that cones are formed. Hold the rolled up end of the paper and jerk down the cones suddenly. What do you observe and why ?

Solutions to Problems in Activities with Paper (III & IV)

Activity No. 14

Obeservation : Water starts boiling after sometime without the paper getting damaged by the flame.

Reason : Heat from the flame to the paper is conducted to water and it gets used up in heating the water.

Activity No. 15

Observation : Colour rings are seen.

Reason : This is because of interference of light coming out of the two holes.

Activity No. 16

Observation : The paper ring moves up along the tube.

Reason : To produce increased centripetal force, the ring moves up.

Activity No. 17

Observation : The bigger diameter paper tubes come up.

Reason : To become stable, the system lowers its C. G. by concentrating smaller diameter tubes at the bottom of the beaker.

Activity No. 18

Observation : The paper ring bulges out across the tube and flattens in along the tube.

Reason : It is due to centripetal force.

Activity No. 19

Observation : The system gets stable on the finger tip at one end.

Reason : The system is stable because the C. G. gets lowered by the side tubes.

Activity No. 20

Observation : The pin-wheel rotates.

Reason : The kinetic energy of wind changes to mechanical energy of the pin-wheel.

Activity No. 21

Observation : The water drops are spherical while the bigger ones are flattened.

Reason : For the bigger drops, the gravitational force is more than the force due to surface tension which makes the drops get flattened.

Activity No. 22

Observation : The smaller water drops remain sticking while the bigger drops roll down.

Reason : For the bigger drops, the gravitational forces is more than the force due to surface tension and this makes the bigger drops roll down.

Activity No. 23

Observation : The triangle structure is difficult to deform.

Reason : In triangular structures the applied force gets resolved so that some components of it cancel one another.

Activity No. 24

Observation : The lesser diameter tubes withstand more weight for the same amount of paper.

Reason : In lesser diameter tubes, the larger number of small arches resolve forces to cancel some of the effect.

Activity No. 25

Observation : The paper dart turns when the corner of its wing is bent.

Reason : Imbalance between the forces on two wings due to bending of one causes the paper dart turn.

Activity No. 26

Observation : A loud sound is heard

Reason : On sudden downward jerking the cones open and move up suddenly causing a partial vacuum. Air rushes fast to fill in the vacuum created and strikes the paper to produce a loud sound.

Lively Letters

The writing of letters is slow and monotonous for most young children. The letters can take the shape of people, animals or objects if teacher wishes to. This would not only help the children to learn the alphabets as part of play but also help them to retain their shapes easily. A few writing games were experimented with, which I would like to share with readers. Children can be drawn into a competitive spirit by asking, "let us see who draws the best letters."

The basic strokes used are—a standing up (or vertical) line and a sleeping (or horizontal) line, a diagonal line, a half circle and a full circle. As each letter is taught, a visual image is built up for the shapes it is made up of. For example :

a is like a half circle with a standing line as a chowkidar. To gether they form an **a**

b, d are like two sentries (सिपाही) outside a gate.

Also if **d** rolls over in bed, it becomes **b**

c is a half circle or like a half-eaten *rasgulla*.

e is like a **c** blinking.

f is a vertical line with a cap on the head and a पेट में लेटा हुआ line", or a plant bending over at the top.

h is a chair to sit on.

i is a vertical line with a *bindi* on the top, just like mummy.

j is an **i** with a tail

k is a vertical line, with two tails—one going up and one coming down,

l is a simple standing up line.

m has three legs.

n has two legs or is an entrance to a tunnel.

o is a full circle like a sun.

r is like a tree with one sideways branch.

s is like a snake.

t is like an **f**, but without its cap. It has socks instead.

u is a upside down **n**

v is a softy cone

w is an upside down **m**

x two sticks laid across each other form an **x**

y is a **v** with a tail.

z is a capital N which has fallen over on its sides. It is also lik a zig—zag.

—Continued on page 13

TRIED AND TESTED

Here are two interesting ideas for mathematics workcards, both suitable for junior school.

Scoring Centuries

This is a game for 3 players. The players make runs, while the dice do the work of bowlers. The ORANGE dice counts in units, the YELLOW in tens and the GREEN in hundreds.

	H	T	U
1.			
2.			
3.			
4.			
5.			
6.			

How To Play

Make yourself a score card like this one.

Throw the dice and write down your score after each turn. After an over (6 turns) add up your score. The player with the highest score is the winner.

An Addition Game

This is a number game designed to consolidate addition facts.It can easily be adapted to cover any addition requirements. The game gives children practice in adding any three numbers from 0 to 9. The materials needed are a pack of ordinary playing cards (using a picture card as 0)—alternatively forty cards may be made bearing the numerals 0 to 9—counters of two different colours, and a board. as illustrated, on a workcard.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

The first player takes three cards, adds them together and puts his counter on the appropriate number. Then his opponent does the same. The aim of the game is to get a straight line of five counters either diagonally, vertically or horizontally. The first player to do this is the winner. If a player's total is 26 or 27, he misses his next turn, as he also does if he adds his score wrongly . If a player lands on a square held by an opponent, he removes that counter and has an extra turn. If his total score means that he lands on a square he already holds, that turn is, of course, no use to him.

(Reproduced with permission from Teachertalk April 1988 issue.)

—Continued from page 11

Along with the introduction of the alphabets, the phonetics of each letter are also imparted. It is found that through phonetics the children have been able to follow words much better.

Some Activities

I. Let us take the alphabet b—its sound is 'ब', The children were asked to repeat the sound. Once they were familiar with the sound they came up with words like ब—ब—bat, ball, box, balloon, big, bus, bed, boat, bun, bird, butter, bread, bead, block, board, book, bag, bottle. This way they learnt about 15-18 words for each letter of the alphabet except for a few letters like **i, o, q, x, y, z.**

II. Quiz—The class is divided into two groups. A score board is set. Each group is asked to say a word beginning with a given letter of the alphabet. If they give a right answer they get 1 point. For a wrong answer a zero is given. The quiz has a multi-purpose approach—

(a) They learn words starting with different alphabets.
(b) They learn to count numbers at the end of the game.
(c) They are able to distinguish between the right and wrong sounds.

Friendly competition can be encouraged.

III. Give each child pictures starting with different alphabets. For example, we give him/her pictures of objects whose names start with **a, b, c, d,** at one time. Let them choose one alphabet at a time, paste the associated picture with that alphabet and write down the letter. In this way each child will develop a individual book from **a—z.**

A creative teacher can amuse the children and at the same time she help them to recognise and write letters. This whole exercise helps to enchance visual, motor and cognitive development of the child.

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A List of Material Available in the Ramjas Teachars Centre

This material is available for reference only. These may be duplicated by interested teachers/ schools at their own cost.

Audio Visual Aids

I. **Tape Slide Programmes** (prepared at the Department of Teaching Aids, N.C.E.R.T.) by students of Ramjas School for their S.U.P.W. projects.

1:	Himalayas	set of 18 slides, 1 cassette
2	Birds	set of 31 slides, 1 cassette
3.	Agents of Gradation	set of 22 slides, I cassette
4.	Force	set of 26 slides, 1 cassette
5.	Reality and Fantasy	set of 20 slides, 1 cassette
6.	Pollution	set of 31 slides, 1 cassette
7.	Earth, sun & moon	set of 26 slides, 1 cassette

II. **Video-tape—** "Our Neighbour" - Case study for Environmental studies, prepared by the C.I.E.T., in collaboration with Ramjas Teachers Centre.

Materials prepared at Workshops held in the Ramjas Teachers Centre :

1. Check lists for Evaluation in class 1
   — English, maths, environmental studies, hindi,
2. Guide Lines and class-wise checklists for Learning spellings in the Primary school" (English)
3. Environmental studies material
   — Teaching of Science by A.J. Young
   — Teaching of Maths by John Maggs
4. Ideas and Activities in History.
5. Action Songs for Nursery / K.G. - Class I and II prepared by Madhulika Saran.
6. Language Games for English Language Teaching in the Primary School by Meera Govil.
7. Reference List of some audio - visual aids (hardware and software) available in different parts of Delhi and how to procure them - Prepared by Geeta Mathur.
8. Tasks in Physics to Assess Students Intuitive Responses prepared by Anita Ramphal.
9. A Guide to Simple Lettering prepared by Sneh Kumari.
10. Guidelines on "How to Create an Interest in Reading" by Moloyashree Hashmee.
11. A Guide to Tree - spotting - Prepared by Ashish Kothari and Mrs. S. Srinivasan.
12. Simple Science and Nature Activities with Infants - Prepared by Mrs. Srinivasan.
13. Experimental Resource Pack on Environment Education prepared by the School. Environment Network (The modified pack is under preparation).

(The August 1988 issue of PATHWAYS carried an article on Teachers' Centres. We felt readers would like to know what materials are available at each Centre. Materials available at the Educational Planning Group were listed in that article. We would be happy to publish similar lists of materials available with other Centres in India, if they are sent to us.)

□

Books Corner

Have you seen

SUNGLOW — An Educational Magazine for Parents, Teachers and Children, published quarterly.

The first issue, released in September 1988, contains an interesting pull-out on Number Games for Infants, recipes to make the contents of children's lunch boxes more tasty, basic facts about computers and several contributions from both adults and children Annual subscription is Rs. 32.00 (plus Rs. 5.00 for outstation cheques), to be sent to Interline Communications, 3/12 Cleveland Road Cross, Bangalore 560 005.

LET'S SPELL WELL — a series of four books by G. H. McMahon, revised by Ambika Sengupta, published by Orient Longman; Price Rs. 7.50 each.

Aimed at primary classes, the books are cleverly illustrated. Extensive practice through puzzles, activities and sentences emphasize the meaning and usage of words. Rules for spellings are also included.

HELPING CHILDREN LEARN— by Zakiya Kurrien, a set of two books by published by Orient Longman. Price per set Rs. 135,00.

The first book is the Teachers' Guide and outlines a variety of games and learning activities which are possible using materials available in the second book, a picture supplement. The latter is full of colourful, large pictures, which are to be cut, mounted and then used as directed. It should give a creative teacher many suggestions, ideas for things she can make on her own. The activities, about sixty in number, are intended to stimulate thinking, language and mathematical skills in pre-primary children, thus preparing them for entry into a more formal school system.

□

CREATIVE DRAMA

Child drama is based on a child's natural desire to express himself through play and make-believe and provides us an opportunity to develop in the child awareness of movement and to improve his speech Theatre in many of our schools is often a diluted version of adult theatre. Acting techniques developed there are intended to promote communication with an audience and the actors are generally limited by scripts and the demands of producers. Child drama is not theatre; it does away with the need of scripts and audiences; it permits the child to express himself freely through movement and speech and come to terms with himself and his environment.

The teacher's main task is to stimulate the children, suggest activities and allow them to respond with their own representations. Working together in a class group, without an audience, encourages them to state their own views without self-consciousness. Confidence is acquired as the child is placed in a variety of situations which require discussion, discovery and practice.

Drama involves imaginative work; that is a child transfers himself into other situations and in so doing he begins to have a sympathetic understanding of others He experiments with many life-situations as when he plays at 'Cops and Robbers' or becomes a king. He understands his body, how to use it effectively and in a controlled manner He realises the use of space. He attempts to communicate through interesting, well-chosen words.

The first task of the teacher is often one of creating and atmosphere, of setting the mood, so that the class takes their work seriously. Their Interest may be captured by playing drama games like 'Simon says', 'L-O-N-D-O-N', 'Statues' or 'Captain's Cabin', before moving on to more serious work in movement.

Exercises in movement may be carried out individually, in pairs or in groups. The children could be asked to demonstrate movements as diverse as playing with a ball, sword fighting, chasing a butterfly or moving to music. Variations in the speed of the movements required may be helped along by the provision of rhythmic drumbeats-fast or slow, loud or muffled-each having a specified meaning.

Movement classes are best preceded by some form of relaxation. Some of the following can be used as starting points While the children lie on the floor or on the lawn the teacher describes the relaxing situation which they act out. She can move around quietly to raise a hand or a leg and see if it falls back freely when she lets it go testing that the children are truly relaxed.

*You are lying on your back on a beach, by the sea on a hot day .....

*You are sleeping by the [illegible] the sun's rays enter the room .....

*You are having a hot bath.....

*You are floating through the air on a magic carpet..... ...

Relaxation will usually be more complete if it is preceded by some from of tension. Consider the following situations—

*You lift a heavy box on to a shelf which you can only just reach and then sink back exhausted.

*You are a piece of elastic, stretched out... and then let go.

*You are a candle burning down to a pool of molten wax on the floor.

*You are a puppet being made to dance when suddenly the strings break,

From movement the teacher can proceed to speech. Initially one can begin with mere sounds-the engine of a stalled car coming to life, the creaking of a door, the howl of the wind, raindrops falling on a glass pane.....

Further development can include all forms of oral expression such as conversations, discussion. word games, elocution.

When movement and speech are used together it can lead to some basic play between pairs of children. For example—

*little girl with a torn skirt and her mother

*stranger and policeman

*boy and shopkeeper

*the unexpected guest and mother

*traveller in a bus who has lost his ticket and the conductor

*visiting a relative in hospital.

This type of work can lead to group improvisation based on crowd scenes, story making and so on. Such group work will gradually enable the child to attempt the writing of his own scripts. When this phase of child drama has been reached, creative drama has truly achieved its aim for now creating, experiencing, end learning are taking place, through a most effective educational medium.

KAMALA RAO

(Reprinted from PATHWAYS, April 1979)

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Discovery Through Experiment

The real essence of science is honest inquiry. Scientists discover new things because they inquire constantly into the unknown. Children, too, can discover by inquiring and experimenting. The things they find out may not be new or startling to you, the teacher, but to them even small discoveries are exciting

Many so-called experiments are not experiments at all Instead, they are verifications of something both teachers and pupils may know. Even so, they may be advantageous for learning, just as repeated trials are desirable. But discovery through experiment is one of the best means of developing :

i. The confidence that comes by finding out for oneself.

ii. A willingness to try new things, even though the procedures are unfamiliar and the outcome uncertain.

iii. An open-mindedness that ensures acceptance of a new idea if it proves to be more valid than a former one.

The most effective experiments often are those which arise from pupils' own questions instead of from a textbook's or a teacher's suggestions. They motivate pupils much more than artificially imposed experiments and lead to purposeful and hence more efficient pupil activity.

Children's discoveries do not always agree with what others have found. Nevertheless, their discoveries are real, and should be considered "true" until a situation arises or can be arranged where repetition fails to verify their original findings.

When this happens, pupils' changes of mind should come from their own observations, not from adult authority. Scientists do not have a higher authority whom they can ask if their experiment "worked". Like scientists, pupils should learn to rely on what they discover through experiment, not primarily on what the teacher or book says. Their final authority should be the answer to, "What does Nature have to say ?"

From : Teaching Science With Everyday Things; Victor E. Schmidt and Verne N. Rockcastle.

[Do you have a favourite passage or quotation ? Would you like to share it with other readers of PATHWAYS ?]

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